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TRANSMITTAL FORM

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Filing Date	August 29, 2002
First Named Inventor	EDWIN YOUNG CALL
Art Unit	1762
Examiner Name	Katherine A. Bareford
Attorney Docket Number	032867.0031

ENCLOSURES *(check all that apply)*

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  - ☐ Fee Attached
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- ☐ Extension of Time Request
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- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) *(please identify below)*:

Brief-16 pgs.; Appendix -4 pgs.; 3 copies of Brief; return receipt postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm	Smith, Gambrell & Russell, LLP		
Signature			
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Date	June 13, 2005	Reg. No.	20,531

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl. No.	**10/089,315**
Appellant:	**EDWIN YOUNG CALL**
Filed:	**August 29, 2002**
TC/A.U.	**1762**
Examiner:	**Katherine A. Bareford**
Title:	**SYSTEM FOR PROTECTION OF SUBMERGED MARINE SURFACES**
Docket No.:	**032867.0031**
Customer No.:	**25461**

MAIL STOP APPEAL BRIEF-
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APPELLANTS' BRIEF ON APPEAL (Replacement)

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Date: June 13, 2005

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A. INTRODUCTION

This Appeal is from an Official Action dated October 28, 2004 finally rejecting Claims 1, 2, 4, 6, 7, 9-21, and 23-27.

1. Real Party in Interest.

The real party of interest of this Appeal and the present application is 1120 Partners, Inc., 156 East 66th Street, New York, NY 10021, as evidenced by the assignment recorded in the United States Patent and Trademark Office on April 16, 2003 at Reel 013967, Frame 0391.

2. Related Appeals and Interferences.

The Appellant, Appellant's legal representatives, and the assignee are not aware of any related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this pending Appeal.

3. Status of Claims.

Claims 1, 2, 4, 6, 7, 9-21 and 23-27 stand rejected and are appealed. Claims 3, 5, 8 and 22 have been cancelled.

The claims on appeal are set forth in the attached Appendix. Claims 1, 7, 13 and 19 are independent claims. Claims 2, 4, 6, 11, 14, 15, 17, 18, 24, 26 and 27 are dependent on Claim 1. Claims 9 and 12 depend directly or indirectly on Claim 7.

Claim 16 is dependent upon Claim 13. Claims 20, 21, 23 and 25 are dependent on Claim 19.

4. Status of Amendments.

An amendment correcting Claim 7 was filed in response to the final rejection of October 28, 2004. The amendment was mailed March 7, 2005, and was entered by the Examiner, as advised in the Office Action dated March 30, 2005.

The Notice of Appeal was filed January 26, 2005.

B. SUMMARY OF CLAIMED SUBJECT MATTER

There has been a problem with the prior art with respect to the protective coating of surfaces in a submerged marine environment.

Different coatings have been used to coat various surfaces such as steel and concrete to protect them against corrosion and the like. Not only has there been a corrosion problem with metals that are immersed in a marine environment, that is particularly with regard to salt water, but also there has been a problem with fouling of surfaces where marine animals and plant life rapidly accumulate on submerged surfaces located in intertidal regions. In the marine industry this is referred to as "fouling" or "bio-fouling". Barnacles are an example of such fouling, sometimes referred to as "hard fouling". Soft fouling generally involves the deposition of slime or algae.

Claim 1 calls for a method for protecting submerged or partially submerged marine surfaces from bio-fouling without the use of an external electrical power supply. See application, page 4, line 30 to page 5, line 23. This method is carried out by directly spraying the surface to be protected with a zinc or zinc-based alloy. See page 5, lines 6-12. Use of the word "directly" means there is no intermediate coating. See page 5, lines 28-29; page 8, line 29. Claim 1 further defines the coating as being produced by an electric arc, twin wire thermal spray process. See page 6, lines 26-29; page 7, lines 26-27. Of the two wires used in the twin wire thermal spray process, at least one is zinc (page7, lines 2-3) and the second such that the resultant coating deposited is zinc or zinc alloy. See page 7, line 29 to page 8, line 10. The claimed method results in being able to obtain a protective coating of the zinc or zinc-based alloy on the surface of the submerged structure to provide protection.

Additional features of the invention are defined in Claim 2 which requires that the coating be free of tributyltin, a material widely used in the past but which has serious environmental problems. Dependent Claim 4 specifies that the surface that is treated can be carbon steel, aluminum, stainless steel, copper, brass, copper-nickel, monel, lead and/or bronze. Dependent Claim 6 specifies that the surface is fiberglass, plastic, a composite or wood. Dependent Claim 11 defines the thermal spray metalized coating as being composed of 50 to 100% zinc and wherein the amount of zinc on the coating depends on the surface to be coated. Dependant Claim 14 specifies that the marine surface is the hull of a ship, ship hardware, buoy, a lock, a dam, an offshore oil rig, a pier, a wharf, bulkheads, pipelines and/or seawater intakes. Dependent Claim 24 specifies that the second wire is zinc to produce a 100% zinc coating on the marine surface. Claim 26 refers to a specialized application of the present invention wherein the marine surface to be protected is on a propeller.

Dependent Claim 27 specifies that the second wire is a zinc-copper alloy.

Independent Claim 7 calls for a method for protecting a submerged or partially submerged metal marine surface without the use of an external electrical power source which requires the steps of washing the surface to be protected to remove any soluble salts and biomass, blasting the metal surface to white metal and carrying out an electric arc, twin wire thermal spray process to apply a zinc or zinc based coating to the surface to coat the surface with a zinc-based coating and thereby achieve protection against anti-fouling. See page 6, lines 19-29 and the sections mentioned above.

Dependent Claim 9 relates to a more detailed aspect of the subject matter of Claim 7 and specifies applying multiple layers by thermal spray to obtain uniform coverage by the zinc or zinc-based alloy on the surface.

Dependant Claim 12 calls for the zinc metal coating additionally containing the element which can be copper, carbon, tin, nickel, aluminum, magnesium, or mixtures thereof.

Independent Claim 13 calls for a method for cathodically protecting surfaces (see page7, lines 13-16) of submerged or partially submerged metallic marine structures which are to be placed underwater comprising without the use of external electrical power, thermally spraying the surfaces according to an electric arc twin wire system to obtain the zinc or zinc alloy protective coating on a marine structure. See page 9, lines 1-3.

Dependent Claim 16 calls for the submerged or partially submerged marine structure that is coated in accordance with the method of Claim 13.

Independent Claim 19 calls for a method for protection of submerged or partially submerged marine surfaces from bio-fouling to simultaneously provide barrier corrosion protection and cathodic protection to the surface without external electric power. See page 5, lines 4 and 22. The steps are directly spraying the surface to be protected with a zinc or zinc-based alloy by an electric arc, twin wire thermal spray process (page7, lines 26-27), wherein at least one wire is 100% zinc (page7, lines 29-30) to obtain a protective coating of a zinc or zinc-based alloy on the surface, and further specifies that the protective coating is 50 to 100% zinc and wherein the amount of zinc in the coating depends on the surface to be coated. See page 7, lines 2-3.The claim also specifies that the zinc-based alloy coating may additionally contain an element which is selected from the group consisting of carbon, copper, tin, nickel, aluminum, magnesium and mixtures thereof. See page 7, lines 3-4.

Dependent Claims 20 and 21 are dependent from Claim 19 and specify a particular surface to be protected.

Claim 25 is dependent on Claim 19 and specifies that the marine surfaces are on a propeller.

C. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The final Official Action rejected Claims 1, 2, 4, 6, 7, 9 to 21, and 23 to 27 under 35 U.S.C. § 112 (1st para.) as allegedly failing to comply with the written description requirements.

Therefore, one of the issues on appeal is whether there is a proper written description of the invention defined in Claims 1, 2, 4, 6, 7, 9 to 21, and 23 to 27.

The final rejection also rejected Claims 1, 2, 4, 6, 7, 9-21, 23, 25 and 26 under 35 U.S.C. § 103(a) as *prima facie* obvious in view of the reference identified as "The Application of Zn-Al Coatings to Prevent Corrosion of an Iron Boat" (hereinafter "Zn-Al"), in view of U.S. 5,763,015 of *Hasui, et al.* (hereinafter "*Hasui*").

The final rejection also rejected Claims 1, 2, 4, 6, 10, 13-18, 24 and 26 under 35 U.S.C. § 103(a) as unpatentable over *Goldheim*, U.S. 3,097,932, in view of *Hatfield,* U.S. 4,578,310.

D. ARGUMENT

1. The Rejection of Claims 1, 2, 4, 6, 7, 9 to 21 and 23 to 27 under 35 U.S.C. § 112 (1st paragraph)

The law relating to 35 U.S.C. § 112(1) - the "Written Description of The Invention" is set forth in the MPEP Section 2163(1), pages 2100-155:

> The first paragraph of 35 U.S.C. § 112 requires that the "specification shall contain a written description of the invention. This requirement is separate and distinct from the enablement requirement. See, e.g., *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 15555, 1560, 19 USPQ2d 1111, 1114 (Fed. Cir. 1991). The written description requirement has several policy objectives. "The 'essential goal' of the

> description of the invention requirement is to clearly convey the information that an applicant has invented the subject matter which is claimed." *In re Barker*, 559 F.2d 588, 592 n.4, 194 USPQ 470, 473 n.4 (CCPA 1977). Another objective is to put the public in possession of what the applicant claims as the invention. See *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1566, 43 USPQ2d 1398, 1404 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1089 (1998).

In the final rejection, the Official Action said: "The claim(s) contain subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention."

Claim 1 requires that the coating be applied to the surface needing protection against corrosion and bio-fouling to be conducted by an electric arc, twin wire thermal spray process wherein ". . . one wire is zinc wire and a second wire is zinc or a zinc alloy." Claims 7, 13 and 19 have similar language defining the second wire as being of "zinc or a zinc-based alloy". The Final Official Action on page 3 takes the position that the recitation of "zinc or zinc-based alloy" is new matter and points to the specification at page 7, lines 25-31, where "the only support for electric-arc, twin wire spraying is found". In that section of the application, the statement is made that it is preferred to use a two wire system with electric arc spraying techniques. Page 7, lines 29-31 state: "Thus, one of the wires may be zinc and the second wire can be zinc or copper, aluminum, tin, nickel or magnesium".

The issue is, therefore, presented as to what this quoted sentence means to a person of ordinary skill in the art in the context of the entire application.

In reply, Appellants point out the application as a whole clearly describes zinc or zinc-based alloys as being the material which is applied to the surface to be protected. Thus, attention is invited to the following disclosures in the application:

Page 1, lines 11 and 12, "In particular, the invention consists of preparing and applying zinc and zinc-based alloys".

Page 4, lines 19 to 23, "This invention includes the use of zinc-based metalized coatings to prevent hard fouling on submerged surface. Zinc-copper is one of the alloys selected for this invention. It can be stated, however, that the release rate of zinc, or copper or any of the metals on [sic-or] alloys used to form a metalized coating is much lower than that of a paint product, because the copper metal is only being released through oxidation".

Page 5, lines 26, 27, "Thermal sprayed zinc and zinc-based alloys provide a more durable coating than a copper-nickel and resin coating system, because a metal-to-metal bond is stronger than a metal-to-resin bond".

Page 6, line 26, "Next, a zinc-based metal wire is selected that is compatible with the substrate."

Page 7, lines 2 to 4, "The zinc-based metal wire is composed of 50-100% zinc. The remaining metals include, but are not limited to, copper, carbon, tin, nickel, aluminum, and magnesium."

Page 8, lines 5 to 8, "The inventor's use of zinc and zinc-based alloys provides a better coating than copper and copper-nickel alloys for two reasons. First, zinc and zinc-based alloys are compatible with more surfaces than a copper or copper-nickel alloy."

Page 11, lines 1 and 2, "Thermal sprayed zinc and zinc-based alloys were applied to aluminum propellers, brass propellers, aluminum samples, steel samples, and brass samples"

Page 11, line 9, "A three-bladed brass propeller was coated with a copper/zinc metalized coating."

Page 11, line 23, "The second piece was a brass piece coated with a copper-zinc metalized coating".

Page 12, lines 11 and 12, "The coatings included a zinc metalized coating and six zinc-based alloy metalized coatings".

Page 12, line 21, "It is important that the zinc or zinc-based alloy be correctly selected for each individual application".

Page 12, lines 27 and 28, "This is a good test subject for testing the effectiveness of zinc and zinc-based alloy metalized coatings".

Thus, it is clear from the application that when the two wire electric arc spraying method is referred to in the application, it means that at least one wire is zinc and the second wire is such that the resultant coating is zinc or a zinc-based alloy. Consequently, it is respectfully submitted that the application complies with the written description requirement and therefore the rejection in the final Official Action should be reversed.

2. Claims 1, 2, 4, 6, 7, 9-21, 23 and 25-26 are patentable under 35 U.S.C. § 103(a) and are not rendered obvious by the article entitled "The Application of Zn-Al Coatings to Prevent Corrosion of an Iron Boat", in view of *Hasui, et al.* (US 5,763,015)

The Zn-Al article relied on in the Final Official Action is a document that was presented at the International Thermal Spray Conference & Exhibition in Orlando, Florida, in 1992, and discloses several procedures which are said to result in protection of iron or steel structures in a marine environment. The flow diagram in Fig. 2, on page 1 of the article, shows a series of steps including a check of the boat, a degreasing operation, a blast cleaning operation for removal of rust and scale, the application of a very specific zinc-aluminum coating; namely, 87% Zn and 13% Al, followed by a sealing step and then finally a painting step.

The system of the Zn-Al reference requires a protective coating applied on top of the 87:13 zinc-aluminum coating. Thus, the systems of treatment shown in Table 1, on pg. 2, indicate, for example, that a chlorinated rubber paint is applied after the zinc-aluminum spray or, as shown in Table 6, a zinc-rich paint is applied after the zinc-aluminum spray coating. The spray system disclosed in the article is a flame spray system using a zinc-aluminum wire composed of 87% zinc and 13% aluminum as shown in col. 2, on pg. 1 of the article.

In contrast, appellant's invention, as defined in the claims, concerns a method for protecting a submerged or partially submerged surface from biofouling and corrosion without external electrical power which is carried out by directly spraying a surface with an electric arc, twin wire thermal spray process, wherein at least one wire is zinc to form a zinc or zinc alloy protective coating. Appellants' system of using the electric arc, twin wire thermal spray process is not disclosed in the cited article. Moreover, the article fails to contain any suggestion, reason or motivation to make any changes and clearly does not contain a teaching which would lead a person skilled in the art to use appellants' two wire electric arc process to deposit the protective coating.

Hasui teaches that to obtain a suitable protective coating on a marine surface, a pretreatment of the surface is carried out to first form a porous primer layer containing solid particles, see col. 2, lines 32-45.

After that, a zinc-aluminum pseudo alloy is spray coated thereon by a two wire arc system; see col. 3, lines 52, et seq.

Finally, a sealing treatment is carried out as described in col. 4, lines 32, et seq.

Claims rejected in this application distinguish from *Hasui* by specifying that the zinc containing coating is applied directly to the surface of the metal and, thereby excludes the use of a primer coating such as is taught by *Hasui*.

Moreover, there is no teaching, suggestion, or motivation in *Hasui* that would lead a person skilled in the art to believe that any benefit or advantage could be obtained by use of the two wire electric arc process in place of the plasma coating methods of the Zn-Al article.

Consequently, appellant respectfully submits that the combination of the Zn-Al article and *Hasui* does not render the claims *prima facie* obvious to a person skilled in the art at the time the invention was made.

The Final Official Action, beginning on pg. 6, concludes with respect to the alleged obviousness of the claimed invention in the face of the Zn-Al article, that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the conditions that are described in the Zn-Al article in a variety of ways. For example, the Final Official Action, beginning on pg. 8, alleges that it would have been obvious to (1) perform twin wire arc spraying, (2) use a steel substrate, (3) wash with water, (4) to spray multiple layers to achieve the desired coating thickness with the expectation of achieving the desired coated product, (5) optimize the amount of zinc, and (6) apply the coating to a propeller. However, there is nothing in this article which would suggest that multiple spraying applications, for example, would be superior to a single application; and, indeed, with respect to the thickness of the sprayed parts, on pg. 878, the article teaches: "The thickness did not change significantly on sprayed and sealed parts exposed to the atmosphere. As the term of test was short, it is necessary to continue to test to define the advantages of metal spraying." This shows that the authors of the article were not certain as to what the effective thickness should be, and certainly did not

teach that multiple applications of the layer would necessarily achieve an improvement in the coating and in the protection of the underlying metal surface.

Still further, the Final Official Action (pg. 9) alleges that it would be obvious:

> "...to modify Zn-Al article to (5) optimize the amount of Zn in the coating based on the specific substrate used as supported by *Hasui* so as to achieve the optimum final product protection, because Zn-Al article teaches a test of a specific example of Zn-Al, and further indicates (at page 880) that further investigation is to be performed, indicating the desire to optimize the specific coating used..."

However, there is no teaching in the reference of any specific coating other than the use of a zinc aluminum wire containing 87% zinc and 13% aluminum as set forth on pg. 877 of the article. Moreover, there is no teaching or suggestion as to how the proportions of zinc are to be changed. In other words, should the amount of Zn be increased or decreased to achieve "optimum" results. Hence, the allegation in the Office Action that it would be obvious to "optimize" finds no basis in the disclosure of the reference. There is simply no reason or motivation for a person skilled in the art to change any of the conditions disclosed in the article with the expectation to achieve the desired results.

The Final Official Action further alleges:

> "It would further have been obvious to modify Zn-Al article in view of Hasui to (6) apply the coating system to a propeller so as to produce a protected propeller, because Zn-Al article teaches a coating to prevent corrosion and fouling, and propellers would be a marine surface that would be desirable to protect from corrosion and fouling so as to prolong their useful economic life." (See, pg. 9).

It is well known in the industry that propellers are subjected to very severe conditions. It could not be assumed that coatings which would suffice on a ship hull would also suffice to protect a propeller. Hence, in the absence of any teaching that such coatings are suitable for

propellers, the article fails to suggest to a person skilled in the art that the same coatings applied to the hull can be applied with the expectation of achieving good results on propellers. It is respectfully submitted that the Final Official Action fails to provide sufficient reason, suggestion or motivation whereby a person skilled in the art would be lead to use these coatings to protect propellers with the expectation of achieving good results.

Finally, it should be noted that there is no teaching, suggestion or motivation in the Zn-Al article to use an electric arc, twin wire thermal spray process where at least one wire is a zinc wire and a second wire could be zinc-copper with the expectation of achieving good results. Consequently, appellant respectfully submits that the rejection of the claims as allegedly obvious in view of the Zn-Al article, taken with *Hasui* is not well considered and should be reversed.

2(a). Claims 17, 25 and 26 are not rendered *prima facie* obviousness by "The Application of Zn-Al Coatings to Prevent Corrosion of an Iron Boat" in view of *Hasui, et al.*, (US 5,763,015).

With respect to those claims which define a propeller and the method as applied to a propeller (Claims 17, 25, 26), it should be noted that theses claims are argued separately. The Zn-Al article, fully discussed above, does not disclose applying any type of coating to a propeller. Propellers in marine service are subjected to extremely severe conditions which make them particularly vulnerable to corrosion and fouling. Appellant's invention has proven to be particularly suitable for protection of propellers. The Zn-Al article fails to render obvious the subject matter of the present application which relates to the treatment of propellers; namely, Claims 17, 25 and 26. Nor does *Hasui* mention anything about propellers. Therefore, the combination of references fails to establish *prima facie* obviousness for Claims 17, 25 and 26. Withdrawal of the rejection is respectfully requested.

3. Claims 1, 2, 4, 6, 10, 13-18, 24 and 26 are not rendered obvious under 35 U.S.C. § 103(a), in view of *Goldheim* (US 3,097,932), taken with *Hatfield* (US 4,578,310)

Goldheim, a 1963 patent, relates to anti-fouling coatings for submerged marine objects, such as boat and ship hulls. The patent teaches a flame spray process for depositing zinc and an alloy of mercury and zinc to impregnate the pores of the zinc. In other words, first a flame sprayed porous zinc metal coating is applied and, after that, an alloy of zinc and mercury metal is deposited in order to cover the pores of the zinc metal coating. Nothing in this document discloses appellant's method of spraying using an electric arc, twin wire thermal spray process.

Neither is there any disclosure in the *Goldheim* reference of the special problems dealing with protection of propellers. Consequently, appellant respectfully submits that the reference does not render obvious the claimed subject matter.

Hatfield, newly cited, is relied on in the final action to show use of a twin wire system for application of a zinc coating. The subject matter of *Hatfield* calls for application of a primer coat to a polymeric surface followed by spraying the primer coated polymer with a think metallic film. The purpose of this technology is to provide radio frequency shielding of electromagnetic interference.

Hatfield is not concerned with protection of marine surfaces. One skilled in the art searching for ways to reduce fouling or corrosion in a maritime environment would find no solution to the problem within the four corners of *Hatfield.*

Hence, appellants submit, *Hatfield*, combined with *Goldheim* does not create *prima facie* obviousness of the claimed invention.

E. CONCLUSION

For reasons set forth above, appellant respectfully submits that the rejections of the claims under 35 U.S.C. § 112 and 35 U.S.C. § 103(a) should be reversed.

Respectfully submitted,

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F. CLAIM APPENDIX

1. (Previously Presented) A method for protecting submerged or partially submerged marine surfaces from bio-fouling without external electrical power comprising:

directly spraying the surface to be protected with a zinc or zinc based alloy coating produced by an electric arc, twin wire thermal spray process wherein one wire is zinc wire and a second wire is zinc or a zinc alloy to thereby obtain a protective coating of said zinc or zinc based alloy on said surface to provide protection to said surface.

2. (Previously Presented) The method according to claim 1 wherein the coating is free of tributyltin.

3. (Cancelled)

4. (Original) The method according to claim 1 wherein the surface is a metal member selected from the group consisting of carbon steel, aluminum, stainless steel, brass, copper, copper-nickel, monel, lead and bronze.

5. (Cancelled)

6. (Previously Presented) The method according to claim 1 wherein the surface is fiberglass, plastic, composites, or wood.

7. (Previously Presented) The method for protecting submerged or partially submerged metal marine surfaces without external electrical power comprised of washing the surface to be protected with water to remove any soluble salts and biomass, blasting the metal surface to white metal, selecting one metal wire containing zinc and a second wire of zinc or a zinc alloy compatible with said surface, carrying out ~~a~~ an electric arc, twin wire thermal spray process to

apply a zinc or zinc based coating to said surface to coat said surface with a zinc based coating and thereby achieve protection against bio-fouling.

8. (Cancelled)

9. (Original) The method according to claim 7 further comprising applying multiple layers by thermal spray to obtain a uniform coverage by the zinc or zinc based alloy on the said surface.

10. (Original) The method according to claim 4 further comprising optionally adding a sealer on top of the thermal spray coating.

11. (Previously Presented) The method according to claim 1 wherein a thermal spray metallized coating is deposited and composed of 50-100% zinc and wherein the amount of zinc in said coating depends on the surfaces to be coated.

12. (Previously Presented) The method according to claim 9 wherein the zinc metal coating may additionally contain an element selected from the group consisting of copper, carbon, tin, nickel, aluminum, magnesium and mixtures thereof.

13. (Previously Presented) A method for cathodically protecting surfaces of submerged or partially submerged metallic marine structures which are to be placed underwater comprising, without external electrical power, thermally spraying said surfaces by an electric arc, twin wire system with a zinc wire and a second wire of zinc or zinc based alloy to thereby obtain a protective coating on marine structures.

14. (Original) The method according to claim 1 wherein said marine structure is the hull of a ship, ship hardware, buoys, locks, dam, off-shore oil rigs, piers, wharfs, bulk heads, pipelines and sea water intakes.

15. (Previously Presented) A marine structure which when in use is submerged or partially submerged in water having been coated by the method according to claim 1.

16. (Previously Presented) A submerged or partially submerged marine structure that has been coated according to the method of claim 13.

17. (Original) A propeller having been coated by the method of claim 1.

18. (Previously Presented) A submerged or partially submerged marine surface coated with the method according to claim 1.

19. (Previously Presented) A method for the protection of submerged or partially submerged marine surfaces from bio-fouling, to simultaneously provide barrier corrosion protection and cathodic protection to said surfaces without external electric power comprising:

directly spraying said surfaces to be protected with a zinc or zinc based alloy coating produced by an electric arc, twin wire thermal spray process where at least one wire is 100% zinc, to thereby obtain a protective coating of a zinc or zinc based alloy on said surfaces,

wherein said protective coating is 50-100% zinc and wherein the amount of zinc in said coating depends on the surface to be coated, and

when the coating is a zinc based alloy wherein the alloy may additionally contain an element selected from the group consisting of carbon, copper, tin, nickel, aluminum, magnesium and mixtures thereof.

20. (Previously Presented) The method according to claim 19 where the marine surface to be protected is selected from the group consisting of carbon steel, aluminum, stainless steel, brass, copper, copper-nickel, monel, lead and bronze.

21. (Previously Presented) The method according to claim 19 where the marine surface to be protected is fiberglass, plastic, composites or wood.

22. (Cancelled)

23. (Previously Presented) A marine structure which when in use is submerged or partially submerged in water having been coated by the method according to claim 19.

24. (Previously Presented) The method according to claim 1, wherein said second wire is zinc to thereby produce a 100% zinc coating on said marine surfaces.

25. (Previously Presented) The method according to claim 19, wherein said marine surfaces are on a propeller.

26. (Previously Presented) The method according to claim 1, wherein said marine surfaces are on a propeller.

27. (Previously Presented) The method according to claim 1 wherein said second wire is a zinc-copper alloy.